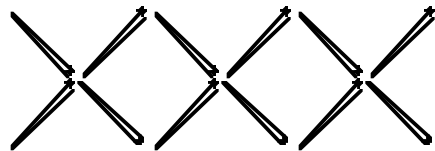
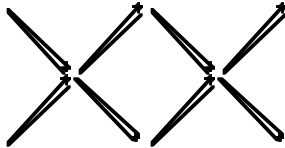
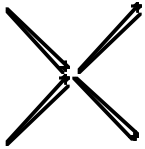


# Build-A-Pattern 1

Build this toothpick fence!



**1 section** needs 4 toothpicks.

**2 sections** need 8 toothpicks.

**3 sections** need 12 toothpicks.

How many toothpicks will you need for 4 sections? \_\_\_\_\_ 5 sections? \_\_\_\_\_

What patterns do you see? Explain.

sections	toothpicks

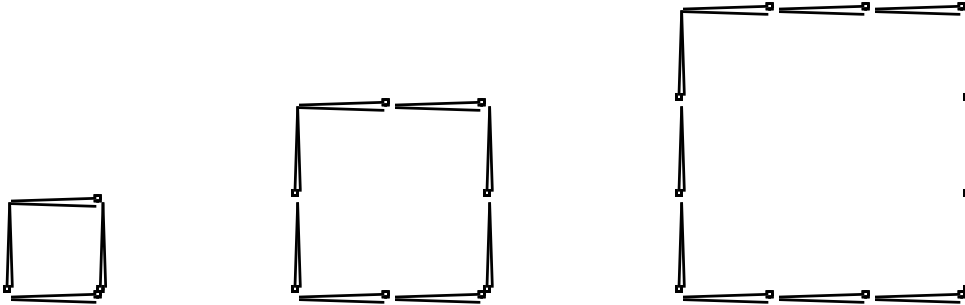
How about 30 sections? \_\_\_\_\_

100 sections? \_\_\_\_\_

How did you decide? Explain.

## Build-A-Pattern 2

Build these hollow toothpick squares!



A **hollow square** with side length 1 needs 4 toothpicks.

A **hollow square** with side length 2 needs 8 toothpicks.

A **hollow square** with side length 3 squares need 12 toothpicks.

How many toothpicks will you need for a square with side length 4? \_\_\_\_\_ 5? \_\_\_\_\_

What patterns do you see? Explain.

length	toothpicks

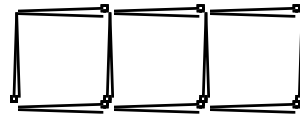
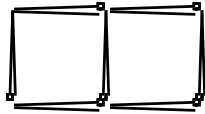
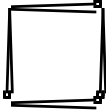
How about a side length of 20? \_\_\_\_\_

side length 100? \_\_\_\_\_

How did you decide? Explain.

# Build-A-Pattern 3

Build this toothpick train!



**1 square** needs 4 toothpicks.

**2 squares** need 7 toothpicks.

**3 squares** need 10 toothpicks.

How many toothpicks will you need for 4 squares? \_\_\_\_\_ 5 squares? \_\_\_\_\_

What patterns do you see? Explain.

squares	toothpicks

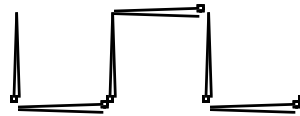
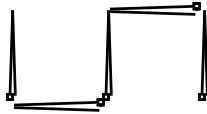
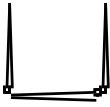
How about 30 squares? \_\_\_\_\_

100 squares? \_\_\_\_\_

How did you decide? Explain.

# Build-A-Pattern 4

Build this toothpick snake!



1 **wiggle** needs 3 toothpicks.

2 **wiggles** need 5 toothpicks.

3 **wiggles** need 7 toothpicks.

How many toothpicks will you need for 4 wiggles? \_\_\_\_\_ 5 wiggles? \_\_\_\_\_

What patterns do you see? Explain.

wiggles	toothpicks

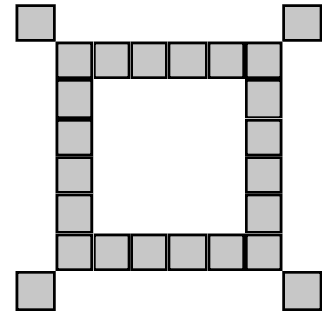
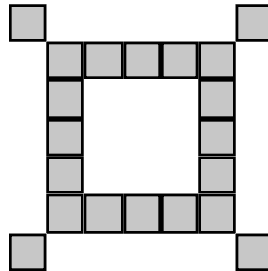
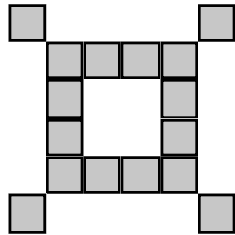
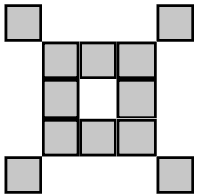
How about 30 wiggles? \_\_\_\_\_

100 wiggles? \_\_\_\_\_

How did you decide? Explain.

## Build-A-Pattern 5

Build this pattern from square tiles!



**Figure 1** needs 12 squares.

**Figure 2** needs 16 squares.

**Figure 3** needs 20 squares.

How many squares will you need for figure 4? \_\_\_\_\_

figure 5? \_\_\_\_\_

What patterns do you see? Explain.

figure #	squares

How about figure 10? \_\_\_\_\_

figure 30? \_\_\_\_\_

How did you decide? Explain.

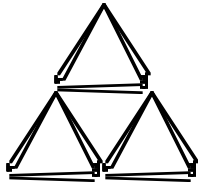


# Build-A-Pattern 7

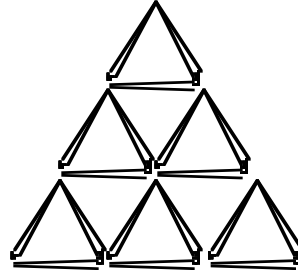
Build this pyramid from toothpicks or pattern blocks!



**1 high** makes 1 triangle.



**2 high** makes 4 triangles.



**3 high** makes 9 triangles.

How many triangles will you make for "4 high"? \_\_\_\_\_ "5 high"? \_\_\_\_\_

What patterns do you see? Explain.

how high	triangles

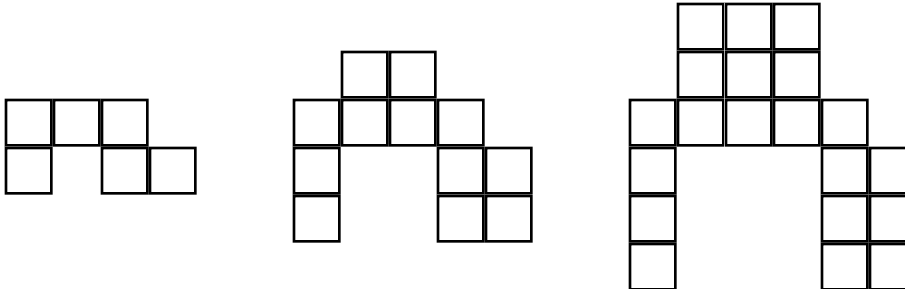
How about "30 high"? \_\_\_\_\_ "100 high"? \_\_\_\_\_

How did you decide? Explain.



# Build-A-Pattern 9

Build this pattern from square tiles!



How is it changing?

**Figure 1** needs 6 squares.

**Figure 2** needs 12 squares.

**Figure 3** needs 20 squares.

How many squares will you need for figure 4? \_\_\_\_\_

figure 5? \_\_\_\_\_

What patterns do you see? Explain.

figure #	squares

How about figure 20? \_\_\_\_\_

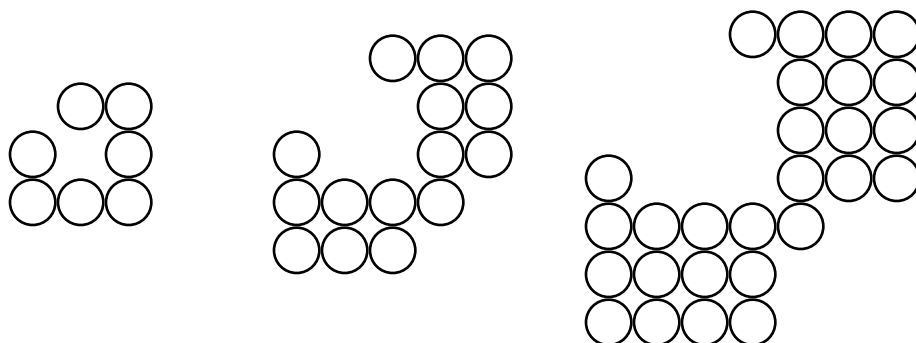
figure 50? \_\_\_\_\_

How did you decide? Explain.



# Build-A-Pattern 11

Build this pattern from counters or coins!



**Figure 1** needs 7 chips.

**Figure 2** needs 15 chips.

**Figure 3** needs 27 squares.

How many chips will you need for figure 4? \_\_\_\_\_

figure 5? \_\_\_\_\_

What patterns do you see? Explain.

figure #	chips

How about figure 10? \_\_\_\_\_

figure 30? \_\_\_\_\_

How did you decide? Explain.

